

What is claimed is:

*Sub a1*

1. A Raman amplifier which is provided with an optical fiber for Raman amplification and a pump light introducing means, said optical fiber transmitting signal light and Raman-amplifying said signal light by pump light introduced thereto, said pump light introducing means introducing, as said pump light, light having a wavelength that is within the amplification wavelength band of an Er-doped optical fiber amplifier into said optical fiber for Raman amplification.

5 2. A Raman amplifier according to Claim 1, wherein the wavelength of said pump light is 1535 nm or more but not more than 1605 nm.

*Sub c1*

3. A Raman amplifier according to Claim 1, wherein said pump light introducing means is provided with an Er-doped optical fiber amplifier which amplifies said pump light and introduces said amplified pump light into said optical fiber for Raman amplification.

*Sub a2*

15 4. A Raman amplifier according to Claim 1, wherein the absolute value of the chromatic dispersion in  $1.65 \mu m$  wavelength of said optical fiber for Raman amplification is in the range of 0.1 to 10ps/nm/km.

*Sub c2*

5. A Raman amplifier according to Claim 1, wherein the effective area of said optical fiber for Raman amplification at  $1.55 \mu m$  wavelength is equal to or 20 less than 85 % of the effective area at  $1.65 \mu m$  wavelength .

*Sub a3*

6. An optical transmission system provided with a Raman amplifier in a repeater section thereof, said Raman amplifier being equipped with (1) an optical fiber for Raman-amplification which transmits signal light and Raman-

*a3*  
*end*

amplifies the signal light by means of pump light introduced thereinto, and (2) a means of introducing light, as said pump light, whose wavelength is within the amplification wavelength band of an Er-doped optical fiber amplifier into said optical fiber for Raman amplification, and said optical fiber for Raman amplification constituting a part or the whole of the optical transmission line of said repeater section.

7. An optical transmission system according to Claim 6, wherein said optical transmission line is further provided with a dispersion compensating fiber, the chromatic dispersion of said optical fiber for Raman amplification having a sign opposite to that of the chromatic dispersion of said dispersion compensating optical fiber, the dispersion slope of said optical fiber for Raman amplification having a sign opposite to that of the dispersion slope of said dispersion compensating optical fiber.

*sub c1*

8. An optical fiber having an absolute value of chromatic dispersion in the range of about 0.1 to 10ps/nm/km at  $1.65 \mu m$  wavelength.

*sub c2*

9. An optical fiber whose effective area at  $1.55 \mu m$  wavelength is equal to or less than 85 % of its effective area at  $1.65 \mu m$  wavelength.

*alt c2*